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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
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| 10/540,529 | 06/24/2005 | Kiyohito Murata | 07057.0113-00000 | 5363 |

22852 7590 03/08/2006

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| EXAMINER |
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TRAN, DIEM T

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| ART UNIT | PAPER NUMBER |
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3748

DATE MAILED: 03/08/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/540,529

Applicant(s)

MURATA, KIYOHITO

Examiner

Diem Tran

Art Unit

3748

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-12 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-5, 7-12 is/are rejected.
- 7) ☐ Claim(s) 6 is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
- ☒ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. ____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|--|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s)/Mail Date. ____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date ____ | 6) <input type="checkbox"/> Other: ____ |

DETAILED ACTION

An Applicant's Preliminary Amendment filed on 6/24/05 has been entered. In this preliminary amendment, claims 1-12 have been amended. Overall, claims 1-12 are pending in this application.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-5, 7-12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Wossner et al. (US Patent 4,023,360) in view of Ban et al. (US Patent 6,571,552).

Regarding claim 1, Wossner discloses an exhaust system; comprising:
an exhaust passage that allows exhaust gas discharged from an internal combustion engine to pass therethrough, a primary exhaust emission control unit (2) including a catalyst to purify the exhaust gas; and first exhaust heat collecting unit (5), the exhaust passage is being divided into a first passage provided with the primary exhaust emission control unit and a second passage provided with the first exhaust heat collecting device (see Figure 1), a control member that is operated to change a flow of the exhaust gas between the first passage and the second passage, wherein an operation of the control member, is controlled based on a temperature in the primary exhaust emission control unit, the control member is operated such that the exhaust gas

Art Unit: 3748

flows through the second passage when the temperature in the primary exhaust emission control unit exceeds a predetermined temperature, and the predetermined temperature is determined based on an activation temperature of the catalyst in the primary exhaust emission control unit (see col. 1, lines 46-66, col. 3, lines 22-26, 45-48); however, fails to disclose that the first exhaust heat collecting unit including a thermoelectric element that converts thermal energy of the exhaust gas into electric energy. Ban teaches that it is conventional in the art, to utilize a waste heat recovery system to convert thermal energy of the exhaust gas into electrical energy to use for powering other devices in the vehicle (see Figures 1, 4, col. 3, lines 21+).

It would have been obvious to one having ordinary skill in the art, to have utilized the teaching of Ban in the Wossner device, since the use thereof would have provided a means to utilize the waste heat of the exhaust gas to generate electricity to power other devices in the vehicle.

Regarding claim 2, Wossner further discloses that a secondary exhaust emission control unit (3) provided on the exhaust passage where the first passage and the second passage are joined (see Figure 2).

Regarding claim 3, Wossner further discloses that an operation of the control member, is controlled based on a temperature in the secondary exhaust emission control unit (3) (see Figure 2, col. 4, lines 32-40).

Regarding claims 4, 5, Wossner further discloses that the control member is operated such that the exhaust gas flows through the second passage when the temperature in the secondary exhaust emission control unit exceeds a predetermined temperature that based on an

activation temperature of the catalyst in the secondary exhaust emission control unit (see col. 3, lines 22-31, col. 4, lines 35-40).

Regarding claim 7, Wossner further discloses that the first passage and the second passage are combined into a single structure, the first passage is provided in a center of the structure, and the second passage is provided on an outer periphery of the first passage (see col. 4, lines 25-30).

Regarding claims 8, 9, Ban further teaches that the second passage includes a heat exchange member (9) that transfers heat of the exhaust gas to the exhaust heat collecting device, and the exhaust heat collecting device is provided with a catalyst for purifying the exhaust gas (see Figure 1, col. 3, lines 12+, col. 4, lines 1+).

Regarding claim 10, the modified Wossner system discloses all the claimed limitations as discussed in claim 7 above, however, fails to disclose that structure in which the first passage and the second passage combined is placed in the vicinity of an exhaust manifold in the internal combustion engine.

With regard to applicants claim directed to a specified location of the first and second passage structure, the specification of such would have been an obvious matter of design choice well within the level of ordinary skill in the art depending on design variables, such as the type and size of the structure, spacing, operational temperature range of the catalyst, etc. Moreover, there is nothing in the record which establishes that the specification of such presents a novel or unexpected result (See *In re Kuhle*, 526 F.2d 553, 188 USPQ 7 (CCPA 1975)).

Regarding claims 11, 12, Wossner further discloses that the control member serves to change each flow rate of the exhaust gas flowing into the first passage and the second passage by

operating a valve to close and open one of the first passage and the second passage at a predetermined degree (see col. 3, lines 45-48).

Allowable Subject Matter

Claim 6 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Prior Art

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure including: Ha (U.S. Pat. No. 4,685,291), Geiger (US Patent 5,250,268), Bouchez et al. (US Patent 6,009,703), Haines (US Patent 6,347,511), Hartick (US Patent 6,422,007), and Deeba (US Patent 6,568,179).

Conclusion

Any inquiry concerning this communication from the examiner should be directed to Examiner Diem Tran whose telephone number is (571) 272-4866. The examiner can normally be reached on Monday -Friday from 8:00 a.m.- 6:00p.m.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Thomas E. Denion, can be reached on (571) 272-4859. The fax number for this group is (571) 273-8300.

Art Unit: 3748

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 800-786-9199 (toll-free).

DT
March 6, 2006



Diem Tran
Patent Examiner
Art unit 3748



THOMAS DENION
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 3700